THE MODEL RAILWAY NEWS

VOL. 16 NO. 189 SEPTEMBER, 1940 SIXPENCE

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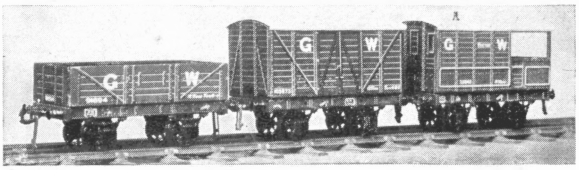

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THE MODEL RAILWAY NEWS

Vol. 16. No. 189. SEPTEMBER, 1940. Sixpence

60, Kingsway, London, W.C.2

Notes of the Month

To Our Readers

THE recent Government Budget has contained the proposal to include books and periodicals within the scope of the new Purchase Tax. Unless this proposal is modified from the form it takes at the time of writing this note, it means that the price of all sixpenny magazines will have to be increased to sevenpence in order to meet the new tax. At the moment, we are not aware of the date on which the Purchase Tax will become operative, and we intend to keep the price of the MODEL RAILWAY NEWS unaltered till that date. We hope, however, to be able to give our readers ample notice before the price is actually increased. The war must be paid for, and the recent additional taxes on most everyday commodities are, unfortunately, absolutely necessary, for a time at any rate.

* * *

Stern Criticisms

Elsewhere in this issue, we publish a letter under the heading "Standards Wanted," from Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P. We have sometimes wondered how long it would be before somebody began to shake up the model railway fraternity generally! Unfortunately, Lieut.-Col. Moore-Brabazon's experiences are typical of the state of things existing in this country, at the present time; and, if we are to progress, we must see to it that we put our house in order. The anomaly is that, so far, we seem to have been trying to progress along the lines of adapting the old "tin-plate" standards to the new true-to-scale equipment. To maintain that things cannot be otherwise is futile, if only because there are certain enterprising individuals who, working by themselves, have shown that much finer standards are easily attainable, involve no extra trouble constructionally, and are absolutely satisfactory in use. Our American friends, starting from zero, attacked this problem at the outset, and evolved a set of national standards that are adhered to by all devotees of the craft. After the war, many of us will have to "begin again," and the opportunity for effecting some much-needed reforms seems too obvious to miss. So let us, in the meantime, make every endeavour to meet the dawn of a new era of progress, but along the right lines.

From the Forces

We are very gratified to note that, amid all the stress of warfare, our friends in the Fighting Forces can find time to remember us and to write us cheerful letters. Mr. Peter Clare, the popular hon. secretary of the Bristol Railway Circle, about whom there was some anxiety by reason of the fact that it was known that he was almost certain to have been in the dreadful Dunkirk affair, has written a cheery letter to let us know that he is safe and well somewhere in Wales with the rest of his unit. He states that, during a recent brief leave, he found his "Ashton Branch of the L.M.S." very much overgrown, but that after a vigorous "de-weeding," he was able to get the trains running again! He has been receiving his MODEL RAILWAY NEWS regularly during his absence on duty, and he sends us cordial good wishes which, needless to say, are heartily reciprocated.

Private W. A. Snelling writes, from somewhere in England, that he too receives his MODEL RAILWAY NEWS each month. He says that he would like to see more articles concerning layouts of other readers, but realises that the present time is not conducive to the writing of such descriptions. We can assure him, however, that we have a number of such articles in hand, and if circumstances permit, they will be published. Mr. Snelling hopes that the difficult times we are passing through will soon disappear, and sends good wishes for the future of our hobby and the MODEL RAILWAY NEWS. Once more, we cordially reciprocate.

* * *

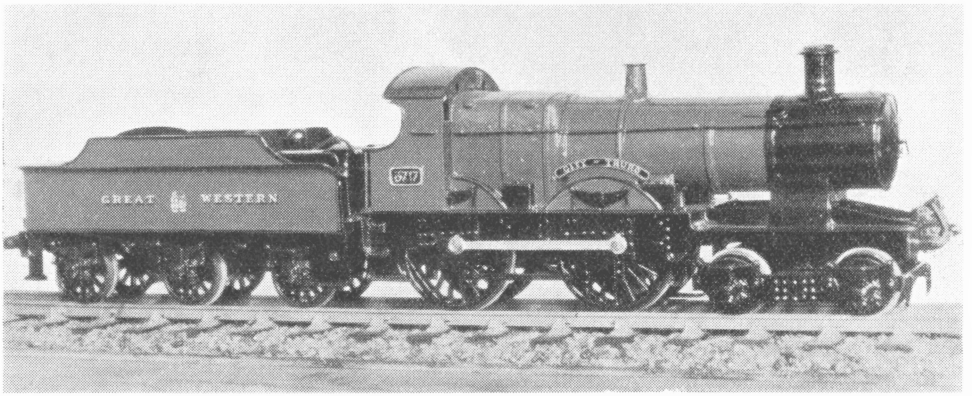
L.M.S. Engine No. 5543 Named

On July 30th last, another of those interesting engine-naming ceremonies took place at Euston station, L.M.S.R. A guard of honour was mounted by the Euston (L.M.S.) Section of the Home Guard, and Engine No. 5543 was brought into the station by a crew, both of whom were members of the same Defence Force. In the presence of Lord Stamp and other of the company's officials, Lieutenant-General Sir Henry Pownall unveiled the engine's name-plates to reveal the name *The Home Guard*. No. 5543 is one of the 3-cylinder "Patriot" class of express passenger engines.

* Some "O" Gauge Rolling-Stock

By Dr. STEWART WACHER

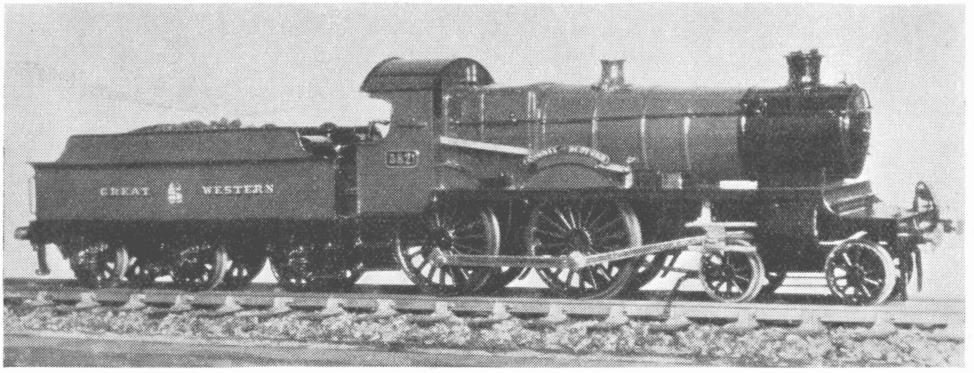
So much for actual rebuilds. The next step in acquiring good models apart from actually building them in the home shops, is to get a professional to build them to order. I must admit that this may appear to be rather a lazy method, but, of course, it has many advantages, not the least of which is the time factor, for it has taken me some three months to build the "S.R." No. 900 "Eton," of which I enclose a photograph. But I have struck a compromise with the professional, in that all the models which I have had built to order have been obtained unfinished, some with mechanisms, and others without. This leaves the addition of all the little superdetails, together with the painting and lining-out to be done in the home shops, and it is this work which I find most interesting, as it entails a certain amount of research work as I have mentioned previously. I enclose several photographs of such models, namely :—G.W.R. "City of Truro," "County of Bedford," "King George V," "2810," "4700," "Meteor." S.R. "Lord Anson," "1733," "A796," "River Stour," Continental passenger stock 2nd class and 1st brake compo. I have engraved the number-plates for all the G.W.R. locos myself, but the nameplates were beyond me and have been purchased specially. The two outside-frame locos have had all the rivets inserted in the side frames and bogie frames, which was a long and tedious job, using small pins soldered into drill holes ; but how necessary they are to give the loco a finished appearance. S.R. "Lord Anson" has been fitted with a dummy footplate control panel. The continental passenger stock, of which there are five, have all been correctly fitted with accommodation handles, end steps, etc., and the seat numbers have been painted on the panels, and "smoking" labels, cut out of coloured tissue paper, have been stuck inside the windows. This train, a photo of which is enclosed, was on loan at the Model Railway Club Exhibition last April. The G.W.R. "King George V" was at one time fitted with a reversing switch in the cab, but the wiring contacts were poor and the springs got rusted up, which caused endless trouble until it was removed.



The model G.W.R. "City of Truro."

Needless to say, several of my models, chiefly coach stock, were delivered in a condition which left very little further to be done, except for fitting destination boards and end steps. In all of these, as with every other bogie vehicle, I have substituted Exley sprung bogies of the correct pattern according to the railway concerned, I enclose photos. of a few of these, namely, G.W.R. clerestory passenger luggage brake, L.M.S. 12-wheel sleeper and L.N.E.R. sleeper. Of second hand models which I still run, untouched as yet, I enclose photos. of L.M.S. "Princess Royal" and L.N.E.R. "4442." I would add that all tender locos. have been fitted with a pick-up beneath the tender, in order to aid running over scissor crossings. These I have made myself, by screwing a block of ebonite beneath the tender, and fitting an adjustable strip of phosphor-bronze to act as a spring, the pick-up for outside conductor consisting of a piece of stout brass wire soldered across the end of the spring strip. The connection with the mechanism is made by means of two pieces of rubber-insulated flex which meet on the footplate and are

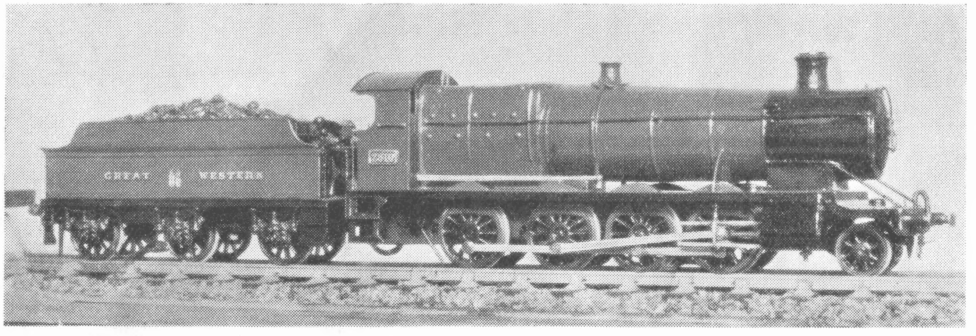
* *Continued from page* 160.



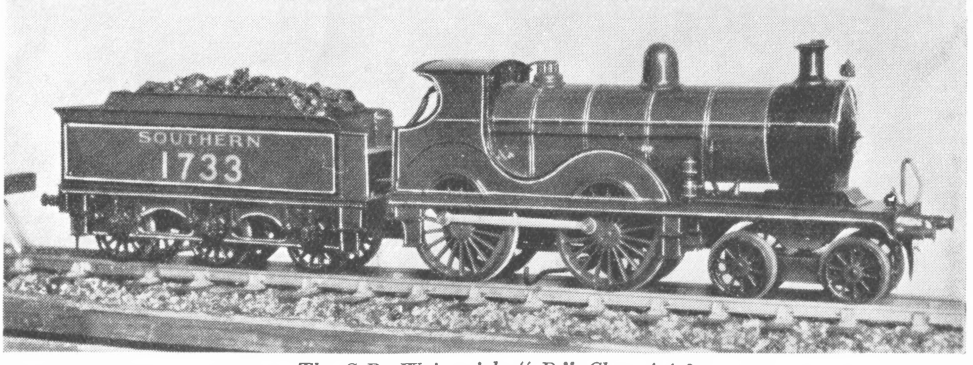
The G.W.R. "County of Bedford."

Joined together by necklace fasteners from Woolworths. I find this a much more ready method of disconnecting loco. from tender than the usual one of turning them both upside down on the bench and releasing a screw, as either can now be lifted separately from the track. The fitting of pick-ups beneath bogie tenders was a bit of a problem, but I solved it by screwing the ebonite block beneath the rear bogie frame, so that the brass tar moves with the bogie and thus always keeps correct spacing with the wheels, so obviating short circuits.

This concludes model stock which has been imported in various stages of construction, but in all of which I have had a finger in the pie, for all models which I run have been repainted in the home shops; of these I send examples in photos. of the familiar "Bonzone" saddle tank, as she appears in G.W.R. livery, and also a second G.W.R. 2-6-2T, 5500 class. The reason for this procedure is that there seem to be so many variations of colour on the market



The G.W.R. "2810."



The S.R. Wainwright "D" Class 4-4-0.

purporting to represent one or other of the railway companies ; and when one collects a few finished models this variation in colour becomes only too obvious, consequently I obtain my made-to-order stock unpainted, for the G.W.R. and S.R. loco. green paints which I use have been received from the respective companies.

Finally I come to models which I have built entirely myself. I must admit that these represent a very small percentage of my total stock, but the time factor must be my excuse, as I suppose is the same with many others who possess model railways. Two locos. have emerged from the home shops, S.R. " School " class, No. 900 " Eton," and G.W.R. 2-6-2T No. 3177, one of the series of larger engines with this wheel arrangement. Photos. of both these are included, but as " Eton " has previously been described in this journal (May, 1932), when first completed, I will say no more about her except that smoke deflectors were added subsequently according to prototype practice. For the G.W.R. tank I turned up the chimney, safety-valve casing and tank filler caps on the lathe. The number plates I also engraved and she is fitted with the correct number of bars to protect the cab rear spectacles from coal. The piston crossheads and slide bars are also home made, but the cylinders are trade castings. The coupling rods and connecting rods were cut from German silver plate, the latter being fluted with the aid of the dental engine, as follows :—a rounded channel is first cut out throughout the length required, and this is then squared out with the aid of a fine flat (1 mm.) file from which the tip has been broken off, thus obtaining a good square cutting edge, the work being done by pushing the file firmly along the sides of the groove.

(To be continued)

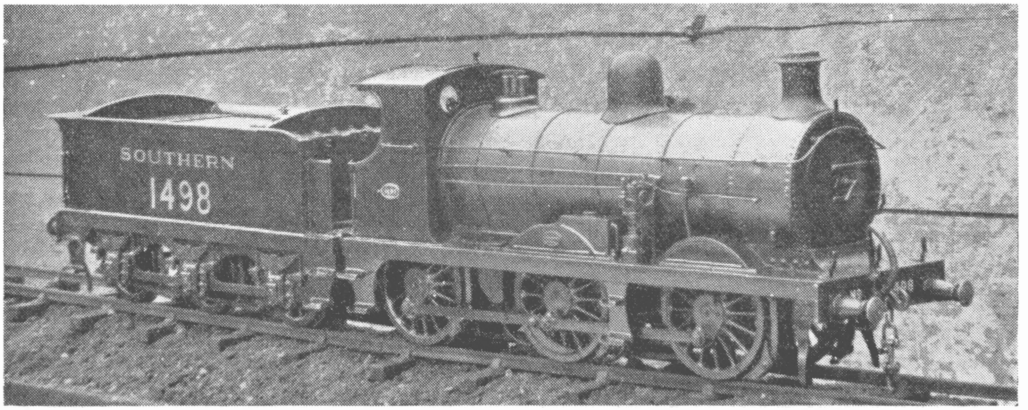
A Gauge " 1 " S.E. & C.R. 0-6-0

THE locomotive seen in the photograph reproduced herewith is a Gauge " 1 " steam driven replica of one of the late Mr. Wainwright's " C " Class 0-6-0 goods engines for the South Eastern and Chatham Railway. This fine model was built by Mr. H. P. Jackson, of York, to the order of Mr. L. Reeves, of Sunderland, and is about as complete and as true to scale as so small a model can be. An *exact-scale* steam locomotive for any smaller gauge is probably an impossibility, otherwise we should have become acquainted with some before now.

We had the pleasure of inspecting " No. 1498 " when she was in the shops of the late Miller, Swan & Co., for painting ; and we have no hesitation in claiming her as the most perfect Gauge " 1 " steam locomotive that we have yet seen, so far as external appearance and detail are concerned.

Since we saw this engine, the cut-away of the cabsides has been corrected ; not that it was very badly " out " before, but it was sufficiently incorrect to be noticed by a meticulous eye. The engine has two cylinders with the valves between them, and two complete sets of Stephenson link-motion. The boiler is coal-fired, and is of proper locomotive type.

In spite of her extreme accuracy, the engine is very strongly built and is very easy to handle. She is painted in the Southern black-with-green-lining livery, and lettered in yellow. Mr. Reeves informs us that he



A very fine Gauge " 1 " steam driven S.R. 0-6-0.

was brought up near Edenbridge, and takes a keen interest in the locomotives of the old S.E.& C.R. and L.B.& S.C.R.

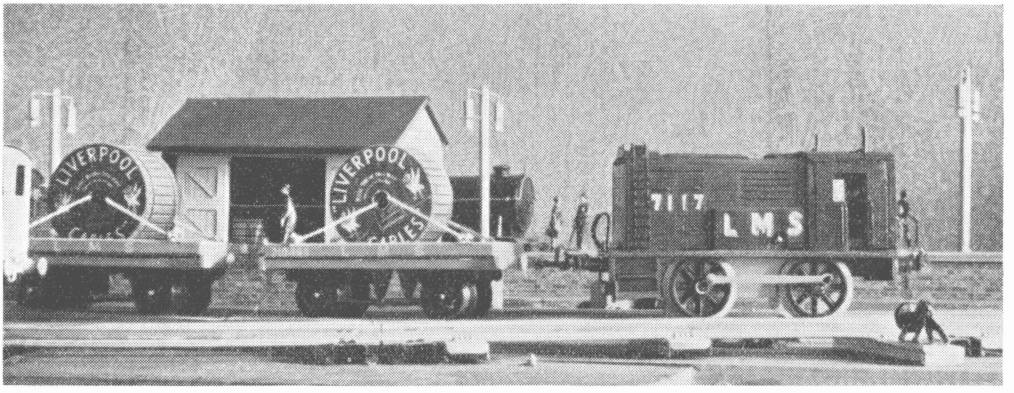
Mr. Maskelyne's recent " Railway Topics " dealing with reminiscences of Edenbridge prompted Mr. Reeves to submit the photograph of " No. 1498," and we hear that a Gauge " 1 " L.B.& S.C.R. Class " H2 " Atlantic is in course of construction by Mr. Jackson, to a drawing supplied by Mr. Maskelyne ; we hope to publish an illustration and some particulars of this engine, in due course. It will be another exact-scale, steam-driven model, of course, and will be interesting to compare with the 0-6-0.

A 7 mm. Scale Diesel Shunter

By P. R. WICKHAM

THE reproduced photograph shows my first attempt at loco. building, a free-lance 0-4-0 Diesel shunter, based on the drawing in the August, 1939, MODEL RAILWAY NEWS, and other photos in various issues.

With the exception of the mech., wheels, and various small parts the loco. is built entirely from plywood. The simple casing of a Diesel loco. lends itself particularly well to this type of construction, but as the experiment has proved successful, I see no reason why, with a little extra care, a " steam outline " loco. could not be made in the same way.



Mr. Wickham's " O " gauge Diesel shunter.

The mech. is a Hornby one, and was used complete with wheels and coupling rods, but, of course, without piston rods. As the loco. is a free-lance type I was able to design it to fit the mech., which necessitated making the casing slightly higher and wider than my original drawings.

The footplate, cab, and engine casing were cut out from plywood on the fret machine, the footplate and casing sides and top being 3 mm. stuff, and the cab and the front of the casing rather thicker to give strength, all parts being glued and pinned together. Inspection doors and ventilator grilles are scored on the sides of the casing with a penknife, the handles on the former being made from thin wire bent " paper-fastener-wise," and inserted in holes in the casing. A simple method of representing the radiator was used, parallel lines 1/16 in. apart being scored across the front. Side and roof tanks, and the imitation sliding roof were cut and shaped from various thicknesses of plywood. The cab roof is cut from thin tinned copper and fixed on by tiny wood-screws. Owing to the absence of any bunker for the control rods to project over the ends of these were bent to a right angle and move in slots in the roof.

The ladders at the front are soldered up from thin wire and stuck into holes in the footplate and casing with dabs of glue. Thin wire was also used for the handrails. The steps under the footplate are of ply and card. Buffers were shaped up from $\frac{1}{4}$ in. dowelling with drawing pins for heads. Vacuum pipes are bent from wire wound with very fine wire to represent the flexible parts. Lamp brackets also of wire.

The model was finished with two coats of " Hobbies " enamel, colouring being unlined black with red buffer beams and yellow lettering (shaded red). The lettering was painted on very thin paper with poster colours, cut out, and glued on the loco. Incidentally the lettering looks much neater than in the photo.

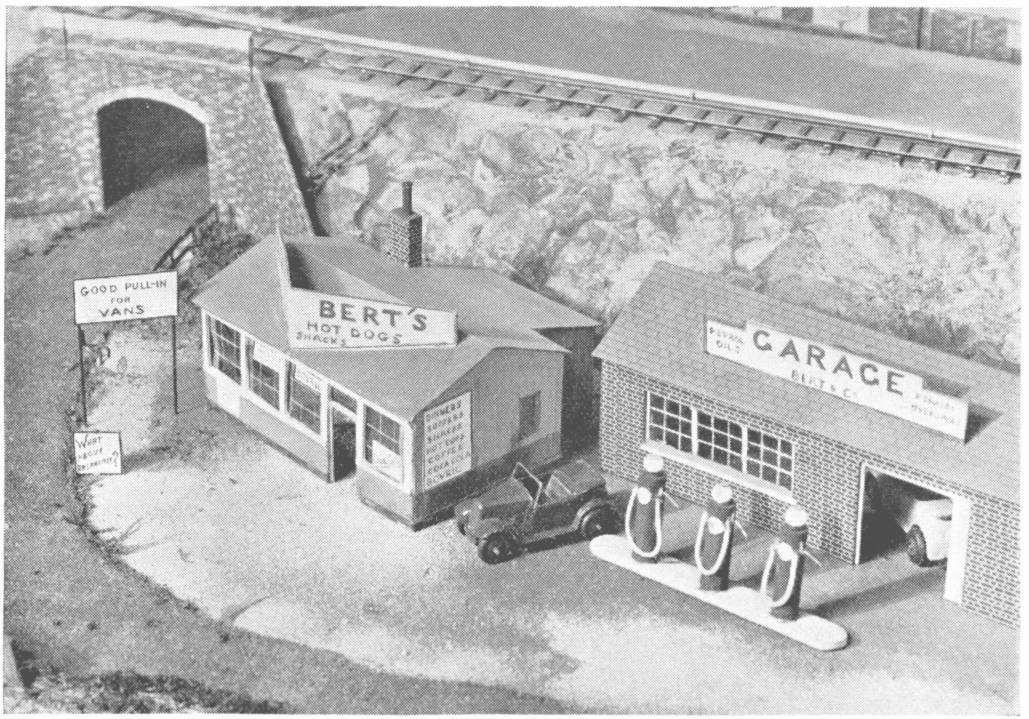
"Bert's"

RURAL England "as is." It will be noticed that the garage and lorry drivers' pull-in are under the same management, and it is clear that "Bert" was an enterprising lad when he acquired that corner site, where the road from the village comes under the railway. As a matter of fact I suspect that he is identical with Mr. H. G. Wells' Bert Smallways, now fattening into a moderately prosperous and nominally respectable middle age. Looking at the photograph it is easy to imagine the stages by which Bert reached his present state of comparative affluence. The original garage was a timber shack, financed by Bert's ma', the landlady of the adjacent "Red Lion," "seein' as 'e always 'as 'ad such a turn for mendin' things," to keep the young fellow out of mischief. There petrol and oil were dispensed and the local lads brought their cycles for the broken spokes to be replaced.

A few years elapsed and a third partner had acquired an interest in the concern; it was Bert's Lizzie who was the moving spirit in the catering concern. The refreshment hut bears witness to the profits which accrued from the sale of petrol and the mending of cycle spokes, and there commenced an equally profitable trade in "soft drinks," Coca-Cola, and "Ticky Snacks," to thirsty and hungry cyclists and bikers.

Lastly comes the obviously new and immaculate brick-built garage, which has replaced the timber shack, as evidence of the prosperity of the catering department. The flood-lamp fixed on one of the posts of the "Good Pull-in" board to illuminate the sign on the roof, will be duly noted, "Bert fixed it hisself," and no doubt the results repaid his enterprise, even if temporary suppression has now become necessary in deference to A.R.P.

And what indeed has Bert and his affairs to do with model railwaying? Well, nothing very definite, admittedly, except that I always think a model railway *in vacuo* a rather cold sort of thing. It wants a country to serve and some sort of human background to make it something more than just a collection of models. And Bert's story might happen in the environs of any model railway.



"Bert's" is an example of skilful scenic work that adds much to a model railway. And it is "OO" gauge!

Railway Topics

By J. N. MASKELYNE, A.I.Loco.E.

The Stroudley "Singles"

ARISING out of my reminiscences of Edenbridge, recently published in these columns, I have had several requests for dimensions and drawings of the L.B.& S.C.R. "G" class single-wheeled engines. Herewith, I reproduce a drawing of No. 329, *Stephenson*, which may be taken as typical of the class as it was in the later years of these engines' existence; but there are one or two points to which I shall draw attention, directly, for the guidance of any readers who may be contemplating the construction of *really* accurate models. This particular drawing was first published in *The Locomotive*, in March, 1934, but is here reproduced to a larger scale; at the same time, I have added a front view and a scale of feet and inches. I hope, therefore, that this drawing, in its present form, will meet the wishes of those readers who have not only asked for it but have complained that the only available published drawings of the "G" class are too small to be of much use, and do not include a front view.

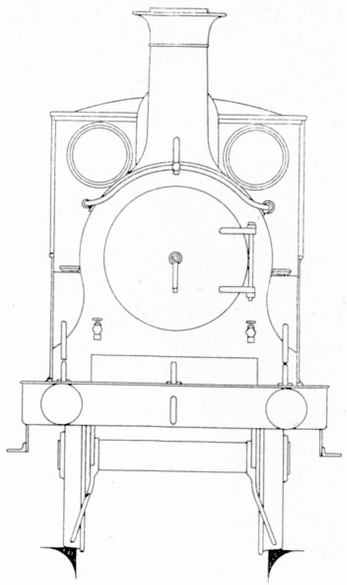
Nota Bene!

For the benefit of readers who are not so familiar as I was with these popular locomotives, I must point out one or two rather important, though small matters. Throughout the whole of their existence, these engines were not altered, except in a few minor details; therefore, although my drawing shows an engine of this class in her later years, it may be very easily adapted for use by anyone who might wish to represent the original condition in a model. Practically the only alteration that was made to the engines of the "G" class proper, was that cast-steel wheels replaced the old wrought-iron ones. So far as the carrying and tender wheels are concerned (and they were all interchangeable) the alteration could scarcely be shown in any but a large-scale drawing; but in the driving-wheels there was a perfectly apparent change, in that the steel wheels had crescent-shaped balanceweights bridging seven spokes, whereas the old iron wheels had square-ended balancingweights bridging only five spokes. Twenty-two spokes was the total number in each type of driving-wheel; and be careful to note that the foregoing remarks apply only to the engines of the "G" class proper, of which there were twenty-four, numbered from 327 to 350. They were all alike, with the solitary exception of No. 341, *Parkhurst*, which was fitted with the automatic vacuum brake in addition to the standard Westinghouse compressed-air brake, and, consequently, she carried some additional external piping. Another alteration to which I must draw attention concerns the handrail arrangement. In the original condition, the handrails were tubes through which passed the operating-rods for the blower and the cylinder lubricator; they terminated at the sides of the smokebox, and a separate curved handrail was fitted on the smokebox front. On one or two of the engines, this arrangement remained unaltered; but in most of the class Mr. R. J. Billinton put the operating-rods under the boiler lagging, and provided a continuous handrail right round the engine. In some cases, this alteration was made by providing extension pieces from the existing handrails to join up with the one on the smokebox front; in others, an entirely new handrail, requiring one knob instead of two on the smokebox front, was fitted. All three types are duly recorded in photographs, which should be carefully studied by all potential model makers.

Two Odd Ones

In Mr. Billinton's time, there were two "interlopers" in the "G" class; these were No. 325, *Abergavenny*, and No. 326, *Grosvenor*. The former was built in 1877, and was then class "F"; the *Grosvenor* was built in 1874, as class "B." Neither of these two engines conformed strictly to the dimensions of the "G" class, the first of which, No. 327, *Imberhorne*, was built in December, 1880; the *Grosvenor* was Mr. Stroudley's first single-wheeler, and was the largest of her type on the line. Her wheelbase was 8 ft. 0 in. + 7 ft. 9 in., and she had an overhang of 5 ft. 8¼ in. at the front and 3 ft. 8¼ in. at the back, making the frame length 25 ft. 1½ in.; her boiler was in two rings, and had a length of 10 ft. 5 in. and a diameter of 4 ft. 5 in. outside the larger ring—about 4 ft. 10 in. outside the clothing—and was pitched 7 ft. 3½ in. above rail level. She had the standard 4 ft. 6 in. carrying-wheels, but her driving-wheels were 6 ft. 9 in. in diameter, and were the largest that Mr. Stroudley ever used; they were never altered. Her cylinders were 17 in. in diameter and 24 in. stroke, and the working pressure was 150 lb. per sq. in. For her time, the *Grosvenor* was a big engine, and thoroughly up to date; yet, for some reason or other, she was the only one built to her particular design.

In January, 1877, *Abergavenny* was put to work, and, compared with the *Grosvenor*, she seemed a small engine. She had been a kind of stock job in the Brighton Works, and took about two years to build. But, when I knew her, she was a smart and lively engine that gave one quite a different impression from that of the decidedly sedate and somewhat slow-moving *Grosvenor*! Here again, in *Abergavenny*, we had an example of a solitary engine built to her particular design. Her wheelbase was the same as the *Grosvenor's*—8 ft. 0 in. + 7 ft. 9 in.—and she had a similar leading overhang of 5 ft. 8½ in.; but the trailing overhang was only 3 ft. 5¼ in., which made the total length of her frames 24 ft. 10½ in. Her most striking feature was the smallness of her cylinders, 16 in. in diameter by 22 in. stroke; but this did not appear to worry her unduly, and the dimensions were never altered. Her boiler was 10 ft. 2 in. long, made in the usual two rings, the larger of which was 4 ft. 3 in. diameter outside; the diameter outside the clothing was about 4 ft. 8 in., and the centre-line stood 7 ft. 1½ in. above rail level. She had 6 ft. 6 in. driving-wheels and the usual 4 ft. 6 in. carrying wheels. She had a wheel-and-screw gear for reversing the link-motion, whereas *Grosvenor* was reversed by a lever.

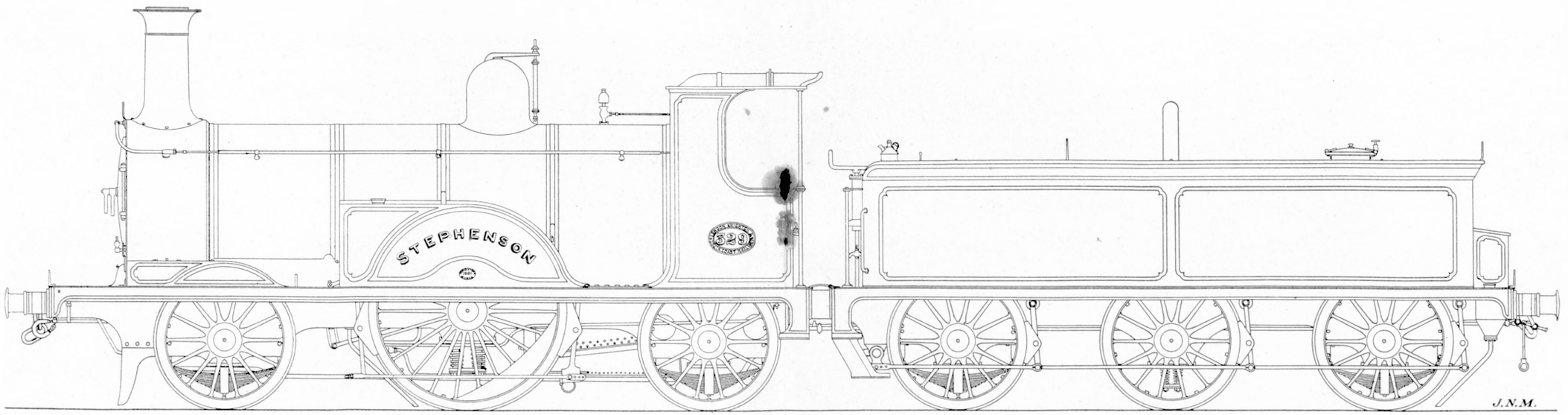


Front elevation of a Stroudley "single."

The engines of the "G" class proper were all built to the following dimensions, which seem to have been a sort of compromise between *Grosvenor* and *Abergavenny*. The wheelbase was 8 ft. 0 in. + 7 ft. 11 in.; the leading overhang remained 5 ft. 8¼ in., but the trailing overhang was 3 ft. 3¼ in., so that the length of frames was the same as for *Abergavenny*, 24 ft. 10½ in. The cylinders were 17 in. diameter and 24 in. stroke, and the driving-wheels were 6 ft. 6 in. diameter, the leading trailing and tender wheels being the standard 4 ft. 6 in. The boiler was 10 ft. 2 in. long, but was made in three rings, the largest of which had an outside diameter of 4 ft. 3 in., or about 4 ft. 8 in. outside the clothing; the centre-line stood 7 ft. 1 7/16 in. above rail level, and the top of the chimney was 13 ft. 2 in. high. All these dimensions remained unchanged throughout these engines' existence. The tender requires no very detailed description, as I gave full particulars and a drawing of it when I dealt with the "Gladstone" class in July, 1930, except that I would remind readers of the misprint which occurred, namely that the height of the body, under the coping should be 3 ft. 5 5/16 in., not 5 ft. 5 5/16 in. There is one other point regarding the tender; in what are supposed to have been official drawings of the Stroudley tender, vertical handrails are shown at the back of the body. I do not recall ever seeing these on any of the "passenger" tenders, as we called them, and no photograph that I have ever seen shows them, so this time I have omitted them!

Simplicity

From the model-maker's point of view, the engines were of neat, straightforward design with few, if any, awkward features about them. I have made one in 7 mm. scale, so I know! The only tricky features are the chimney and the roof of the cab. The former was ornamented with a large copper cap of very distinctive shape, not at all easy to reproduce in a small scale. The cab roof requires considerable patience if success is to be achieved; I have already described in detail how I made the one for my model (see "M.R.N.," October, 1932, page 277), and I gave full particulars of the prototypes in my "Topics" for January, 1932. But remember that the roof was *not* a *flat* plate on the raised portion! Another matter of some importance is that these engines were always painted in Stroudley's "passenger" style; any other livery on a model would be absolutely wrong. And this means, of course, that the elaborate lining presents something of a problem! I have done it fairly successfully in 7 mm. scale, but I would rather that somebody else did it on a "OO" gauge model! The top of the tender tank, together with the filler and the exhaust steam dome on the top of it, were painted a light red oxide colour, not black. Finally, the beading on the cab windows had a raised rim all round the inner edge, and was not a plain flat ring. I have seen models spoilt by lack of attention to these details, even in large-scale models. Good photographs of these engines are still obtainable, many of them from the Locomotive Publishing Co., Ltd., 3 Amen Corner, Paternoster Row, London, E.C.4; so there is little excuse for some of the extraordinary mistakes that I have sometimes found on models. From a variety of sources, however, I have managed to get together a complete set of photographs of the "G" class, including one showing the *Grosvenor* with her original outside-framed tender, and one showing *Abergavenny* with an old "Craven" tender attached. I have never seen any reference to the latter in written accounts of these engines, and would like to know when it occurred.



Side elevation of a L.B.& S.C.R. Stroudley "G" Class "single" and tender.

Simple Remote-Control Signals for "00" Gauge

By K. H. SAMBROOK

NOTHING adds more to the fascination of a model railway than the provision of remote-control signalling equipment. The number of signals required, however, for even a modest layout makes the cost a formidable item if the equipment is to be purchased. The signals described in this article, on the other hand, are made largely from odds and ends generally available, whilst their manufacture demands no high degree of skill.

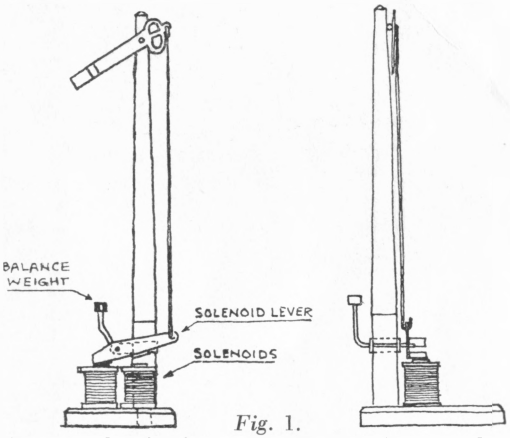


Fig. 1. Front and side elevations. Terminals removed.

A feature of the design is that two solenoids are employed one of which pulls the arm to the "off" position, whilst the other returns it to the "on" position. Since the arm is balanced so that it will remain at rest in either position, electric current is required only during the instant of moving the arm, thus economising in "juice" and avoiding the risk of burning out the solenoid winding.

Another advantage of this arrangement is that, as only a momentary current is required, a simple form of push button switch is suitable for controlling the signals. Dealing first with the signals, the materials required are as follows :—

Sheet tin (e.g., a flat cigarette tin).
¾-in. wire nails (2 per signal).
Some good stout cardboard, about one sixteenth inch thick.
¼-in. brass nails.
¼-in. sq. wood strip (about 5-in. per signal).
A small quantity of three-ply wood, ¼-in thick.
Hard brass or steel wire, about 24 gauge. (A coil of cheese wire as used by grocers for cutting cheese, and obtainable at most ironmongers is suitable, and costs 3d. per coil.)
6 B.A. terminals and tags (3 per signal).
A coil of fine enamelled copper wire (about 32 gauge).

A supply of enamelled wire sufficient for a large number of signals may be obtained from the secondary or outer winding of an old radio L.F. transformer, which will be found in almost every amateur's scrap box, or can be had for a few pence from a dealer. It is only necessary to remove the outer case and pull out the core of stampings and the coil is ready for use.

The following tools will be needed :—
A small hand drill and 3/64-in., 5/64-in., 7/32-in., and ¼-in. drills.
Centre punch.
Small tinman's snips or large pair of old scissors.
Pliers.

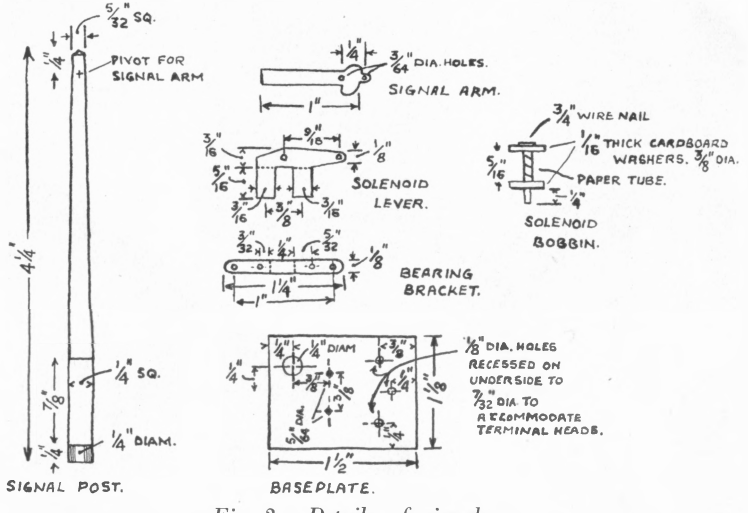


Fig. 2. Details of signals.

Soldering outfit.
Bodkin or pricker.
Hammer, screwdriver and penknife.

Having assembled the materials and tools, a start should be made on the solenoids. This is the most tedious part of the job, and once the solenoids have been made the rest is plain sailing.

First, cut out from the cardboard a number of discs three-eighths inch diameter. If a punch is available they can be stamped out very quickly, otherwise cut them out three-eighths square and trim off the corners to form an octagon. Pierce each washer with the bodkin, working it in until a hole is made which is a good tight fit on the $\frac{3}{4}$-in. nail.

Next, take a piece of gummed paper strip about $\frac{1}{4}$-in. wide and, say, 6-in. long, and, after moistening the gum, lay the strip at an angle of about 45 degrees across a piece of wire slightly thicker than the nail (a knitting needle for instance). Roll the paper strip round the wire spirally to form a paper tube and slip this off before the gum sets. Cut this tube into lengths of five-sixteenths of an inch.

To make up the bobbins, take one of the nails and place a little seccotine underneath the head. Then push on one of the cardboard washers with the burr side towards the point of the nail. Next, slip on the paper tube, place a little seccotine around the burr on a second washer and press this, burr side foremost, on to the nail so that the paper tube is held securely between the two washers. The bobbins are now left to set and are ready for winding.

Winding the Solenoids

A small hand drill makes a splendid winder for the coils. It should be mounted horizontally in a vice or on two blocks of wood screwed to a solid baseboard clamped to a table. The drill should be fixed so that the handle is uppermost and the chuck points to the left. To make a support for the coil of wire or transformer bobbin as the case may be, drive a stout nail into a baseboard and slip the spool over it, having first placed a washer or large nut underneath to ensure free running. Place the spool at some distance behind, and slightly to the left of the operator and at a height roughly level with the drill chuck. A piece of white paper placed on the table underneath the drill-chuck is a tremendous help in dealing with the fine wire.

Now take a bobbin and place the projecting end of the nail in the drill chuck as far as it will go. Take the free end of the wire from the spool and pass it over and around the bobbin at the end nearest the drill chuck. Tie an ordinary single knot leaving a good free end, and pull as tightly as possible without breaking the wire. A few breakages at this stage are all to the good, as one thereby soon gets the feel of a dangerous tension on the wire and can avoid exceeding it at a later stage where a breakage would be a minor disaster.

Having tied the wire successfully, hold the wire coming off the spool in the palm of the left hand, grip the free end of the wire in the right hand and lay it horizontally along the bobbin with the free end projecting over the left hand end, extend the first and second fingers of the left hand and grip the free end between them. Now turn the handle of the drill slowly, keeping a slight tension on the wire with the left hand and guiding it so that the turns run over the free end and bind it to the paper tube of the bobbin. As soon as the free end has been secured in this way, it may be released from the fingers of the left hand and cut off to a length of about $1\frac{1}{2}$-in.

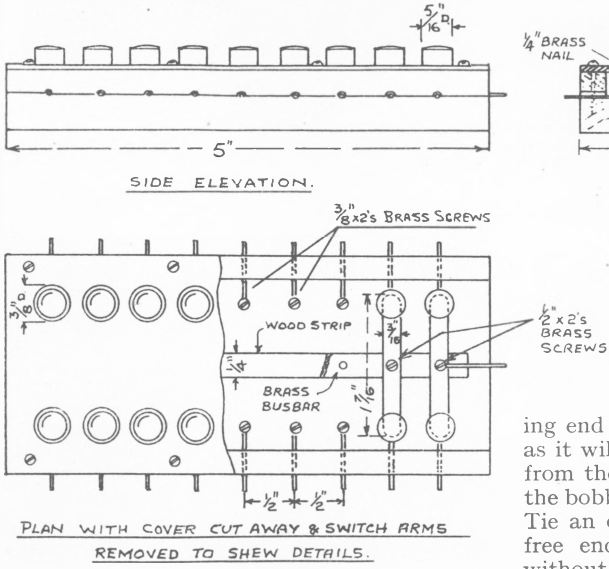


Fig. 3. Control panel arranged for operating nine signals.

Continue winding, keeping an even tension on the wire with the left hand and guiding it slowly backwards and forwards along the length of the spool. Carry on until the bobbin is nearly filled with wire. Should a breakage occur, simply twist the two broken ends together and deal with them in the same way as the free end at the beginning. The ends may then be scraped and soldered together afterwards.

To finish off the bobbin, grip the wire in the left hand about a foot from the bobbin, break off the wire with the right hand about a foot farther back and bend the free end back in a loop, keeping two fingers of the left hand in the loop. Take the free end over the bobbin and bring it up through the loop ; carefully tighten the loop on to the bobbin and bend the end of the wire over to hold it in position. The end may then be broken off to about 1½-in. long. Now remove the bobbin from the drill chuck and, with the cutters of the pliers, cut off the projecting end of the nail to rather less than ¼-in. from the washer.

The winding of the solenoids has been dealt with in some detail for the benefit of those who have had no previous experience in coil-winding. If the job is tackled methodically it will be found that after the first attempt the bobbins can be run off in little more time than it takes to describe the process.

Having completed the number of solenoids required (two per signal), the signal arms, solenoid lever, and bearing bracket should be marked out on the sheet tin, cut out and the holes drilled. When using the three-sixty-fourths drill it is a good plan to obtain a small piece of fine bore tubing which is an easy fit over the drill and of such a length that only about one-eighth of an inch of the drill projects. This not only prevents the drill from breakage but also enables a slightly greater pressure to be used, and considerably speeds up the drilling.

The baseplates may next be cut out and drilled. If a large number are required it is well worth while making a template in metal, which will save the time taken in setting out the holes. The holes in the template for the terminals should, of course be to suit the shank of the terminals, the recess for the head being drilled in the baseplate afterwards. The template should also have a small hole drilled in each corner for sprigging it to the baseplates during drilling.

The making of the remaining parts needs little comment. The spindle of the solenoid lever is fashioned from a paper-clip, whilst the balance weight may be a small brass nut (say, 8 B.A.) soldered on.

The best method of assembly is as follows :—

First tap the solenoids into the holes in the baseplate and push the signal-post home into its socket. Next, bend the spindle of the solenoid arm to shape, pass it through the holes in the bearing bracket and solder on the arm. Now slide the bearing bracket down the signal-post but do not nail it to the post for the moment. The signal-arm may now be nailed in position, a small bead or washer being placed under the arm before driving in the nail. Next, connect the signal-arm and the solenoid lever temporarily with a piece of copper wire and adjust the position of the bracket and the length of the wire until the correct arc of movement of the arm is obtained with the minimum movement of the solenoid lever.

Having obtained the best position for the bracket, carefully mark it on the signal-post, unsolder the solenoid lever from the spindle and nail the bracket to the post. The lever is then replaced and soldered on. The copper wire used for the temporary connection of the arm to the lever is used as a template for the finished connecting rod made from hard wire.

To connect up the solenoids, first scrape the enamel carefully from the wires and twist one wire from each solenoid together. This common wire is soldered to the tag of the centre terminal, this terminal being placed in position first. The two outer terminals are now placed in position, and the remaining wire from each solenoid soldered to the respective tags.

Finally, the signals are painted in the correct colours with cellulose paint, taking care that the paint is not allowed to run around the spindles where it would cause the mechanism to stick.

The Control Panel

A control panel as designed and made by the writer to suit the signals just described is shown in Fig. 3. It is of the push-button type, one pair of buttons controlling each signal. The buttons of each pair are nailed to the opposite ends of a strip of springy brass, the centre of which is screwed to a common bus-bar which runs the length of the frame and is connected to one side of the electrical circuit. Pressure on one of the buttons brings the end of the strip into contact with the head of a brass screw in the baseboard. This screw carries a solder-tag to which is attached the wire from one of the outer signal terminals. The centre terminal on the signal is connected to the centre or return rail of railway track. The leads from the solenoids which pull the signals " off " are connected to the tags on one side of the frame, the corresponding buttons being painted green, those on the other side being painted red and their tags connected to the

solenoids which serve to return the arm to the " on " position.

The panel shown is designed to actuate nine signals but may, of course, be extended as desired.

This type of control has the advantage of being very much easier and quicker to operate than the lever type, whilst it is also particularly suitable for mounting in a dummy signal-box with a roof in the form of a removable lid.

Suitable springy brass for the switch arms and bus-bars may be obtained from the thin brass rule used by printers and the local printers will probably be able to supply a few lengths from the scrap-box at little cost. The push-buttons are made from dowel rod five-sixteenths of an inch in diameter. The buttons are best cut off to length by means of a sharp penknife using a rolling action. This gives a smooth and slightly domed finish to the button.

Solder tags for the connections may be made from copper wire bent with a loop to fit over the contact screw and a straight shank sufficiently long to project about $\frac{1}{4}$-in. over the baseboard. Small grooves should be made in the underside of the strip running along each side of the frame to clear the solder tags. The bus-bar tag is placed under the head of the screw holding the first switch arm. The screw-holes in the wood strip forming the sides of the panel, and also those in the packing strip under the bus-bar should be drilled to clear the screws in order to avoid the risk of splitting the wood.

The remainder of the construction should be sufficiently clear from the sketch to obviate the need for further description. It should be emphasised, however, that the greatest care must be taken in the accurate spacing of the holes in the switch arms and coverplate so that the buttons shall move freely.

Another Webb Saddle-Tank Model

By J. H. AHERN

THE Webb saddle-tanks of the L. & N W.R. are an attractive study from the model-maker's point of view ; they had sufficient unusual features to be rather worth while and a little out of the ordinary so that it was gratifying to see the photograph of Mr. M. D Thornburgh's model in the March number of the ' M.R.N " It is evident that Mr Thornburgh has reproduced the features of the original with fidelity, and the close attention to detail which is evident in all his models.

The photograph here reproduced depicts a model I made in 4 mm. scale some time ago, using the drawing published in the MODEL RAILWAY NEWS for December, 1936. It is at present painted in G.W.R. green (I hope nobody will faint on reading this !), and dubbed " Ajax," with brass nameplates on the tank sides. It is built on a Romford standard mechanism. I must plead guilty of a rather stupid mistake, which detracts somewhat from the characteristic appearance ; I overlooked the square boxes (sandboxes ?) which are built on to the leading splashers. As they come in line with the front of the smokebox it is quite possible to overlook them on a side elevation drawing. The moral is to obtain photos. of the original and to compare them carefully with the drawings.

The Chimney

It is a pity it is not equipped with the correct Crewe pattern chimney, with the highly distinctive square skirt. It will be gathered that this was one of the writer's earlier efforts and many things seemed impossible then which might appear in a different light now. Anyway, that little matter is going to be rectified, and for the assistance of other readers who may be confronted with the same problem, or a similar one, I suggest a means whereby a stock chimney could be adapted to produce a fairly good representation of the Crewe

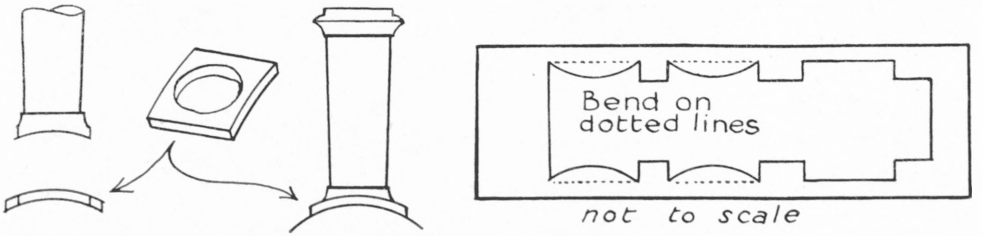


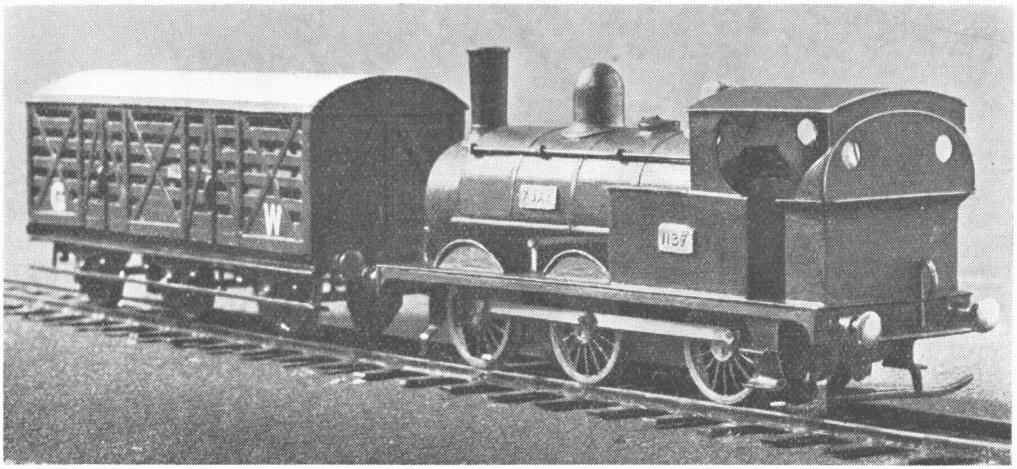
Fig. 1. Details of L.N.W. type chimney, and bedplate.

type. The drawing explains itself I think. Part of the skirt of the chimney is carefully filed away and a new square skirt is made from sheet metal by drilling and filing. The hole should be drilled smaller than the final size and opened up with a round file as the drill cannot be trusted to cut cleanly in such thin stuff. It is bent to the curve of the smokebox, and should just slip over what remains of the original skirt. It is applied after the chimney has been fitted and if the work is clean and the iron hot, the solder will conceal the joint perfectly and produce a smooth curved surface requiring little or no cleaning up.

Bending Splashers

I may mention another tip, used on this model, which should be useful to those who are not too happy with the soldering iron. It concerns the rather fiddling business of fixing small splashers. The footplate was cut out with a jeweller's frame saw as shown in Fig. 1, with the splasher fronts *in situ*. The sheet was placed between the jaws of an iron door hinge, which had been trued up to a straight edge, and clamped in the vice in suitable alignment. The splasher fronts were carefully worked over with the fingers until they stood up at right-angles to the footplate. With care and patience a perfectly clean bend can be obtained, but the work must not be hurried and it is important that the hinge should be gripped *tightly* in the vice. The only reason for introducing a hinge is that the jaws of the average vice are slightly rounded and more or less worn, and it is necessary to protect the work from the milling on the faces of the jaws, but if the reader should be fortunate enough to possess a Record vice in perfect condition there would be no particular advantage in using the hinge. The major difficulty in fitting splashers is avoided altogether by this means; the front cannot come unstuck while the top is being soldered on.

I have not been able to learn much about the history of these engines, but I think it was about 1875 that they made their first appearance. There was no cab in those days, but the rear spectacle plate was in being, or rather the *lower* part of it; meaning the part below the curved line which runs above the windows from corner to corner of the coal bunker. That was the original top edge and the rest was added when the cab roof was put on. An early photograph shows that the oddly shaped little triangular side-plates were part of the original job also, perhaps more with the object of increasing the rigidity of the spectacle plate than of providing weather protection for the enginemen.



The completed model of a Webb saddle-tank engine, in 4 mm. scale.

Answer to Correspondent

B.A.S. (Frome). The reason for the slope on one side of the slot in the horn-plates you refer to, is that the horns are fitted, on that side, with a tapered adjustable slide, or wedge. One side of this wedge bears against the sloping face of the horn, while the other side, which should be vertical when the wedge is in place, bears against the axlebox. This device can be very easily adjusted for height, to take up slackness due to wear, and is claimed to prolong the life of axleboxes and horns by as much as 60 per cent., on the average.

OUR MAILBAG

Standards Required!

DEAR SIR,—An enthusiastic lover of model railways, at one time I made a very elaborate "2" gauge layout; being also not without mechanical experience, lately with misguided confidence, I plunged into "OO" gauge.

I write this letter that others may be warned against false optimism as to the present state of the craft. All model railways to run successfully should be looked upon as mechanisms of precision. The smaller the gauge, the greater must be the precision in order that they should operate.

Here are some of my experiences. I order a locomotive which is to be the apple of my eye—perhaps it was not the most expensive that could be bought, but it cost me £10. I place it upon the lines and find that the side collector shoes were put on with such adjustment and with such a strong spring that the leading driving wheels of the locomotive are in the air. I buy some rolling stock and I find that they are not riding on the tyre of the wheels, but sit—so to speak—in the air, jammed on the two flanges. I invest in a double diamond crossover and under no circumstances does anything at any time go across it without going off the lines. Such disspiriting events drove me to fundamental checking of dimensions and I find that stock rail is frequently sold sometimes as much as 1 mm. inside the correct gauge. Now 1 mm. may be nothing in some gauges, but in "OO" it represents a 3-in. error. How can one possibly expect railways to run with that sort of error? On curves instead of the slight enlargement always necessary, I am told enthusiastically by one maker that "they do not believe in it." Still that can scarcely account for the diminution in gauge that I have often found put into stock curves.

As to breadth of wheels, every form and dimension seems to be indulged in, varying as much as 2 mm. from maximum one way to maximum the other and the perpetrators of these outrages have the audacity to advocate scale-size tyres and flanges. Frankly the result of this sort of sloppiness is complete discouragement to anybody like myself who would like to go in for "OO." A suspicion of iniquity must be present in the minds of some, as I was tempted to buy one particular engine on the basis that "it took the points." I still consider it a bombastic claim.

I really do believe that if this movement is to be as prosperous as it is in America then some powerful body like the Model Railway Club, or somebody, must set some standards and check them, as otherwise immense harm is going to be done to one of the most attractive and instructive amusements one can indulge in.

I have no doubt that if anybody has the time to do everything themselves this "OO" could be made very satisfactorily, but it cannot be done by buying parts from various depots in London in the belief that they are going to work; and yet that should be, surely, the basis for any future business to survive.

Engineering standards are not very difficult to work to. Is there any reason why we should not have engineering standards in such a small gauge as "OO"? The position today is wholly unsatisfactory. I do not wish to do an injury to those owners of proprietary articles who run—so to speak—their separate systems. These I have found strictly to standard and to work satisfactorily, but they have their limitations and do not appeal to everybody.

I know quite well that I shall be greeted with a howl of execration for what I say, but I write this letter because there is only one way of making "OO" a success and that is to deal with it as an engineering proposition and not as a toy. One thing which makes it particularly hard to write this letter is the courtesy and charm extended to me by every seller of these goods in London. One simply cannot be brutal with them, but the exasperation caused by their products, when trying to get them to run, drives one inevitably to the decision that it is best to be cruel to be kind.

Yours obediently,
London, S.W.1. J. T. C. MOORE-BRABAZON.

A Tribute

DEAR SIR,—Your short note on the part played by the railways in the Dunkirk evacuation prompts me to add my tribute. During those days I saw a number of the trains, since I used to wait for my own train at one of the main-line stations between the coast and London. It was a remarkable fact that although the interval between some of the normal trains was only five or six minutes, yet the Southern Railway managed to insert a troop train between them, and for many days it kept to its timetable almost as accurately as the electric services.

I hope that somebody is writing a really full history of this wonderful chapter of our nation's record.

Yours truly,
Bromley. FRANK T. SMITH.

WITH THE CLUBS

The Model Railway Club

Mr. W. Ryan expressed great regret at being unable to lecture to the Club. A number of members brought parts of models and worked on these, explaining their methods of construction. Several useful tips were learned in this manner. Meetings for September: 12th, Track Night; 20th, Illustrated Lecture, by Mr. W. J. Bassett-Lowke, "Milestones in the Progress of the British Steam Locomotive." Hon. Secretary, Mr. J. C. Watts, 85, Wood Vale, N.10, from whom full particulars of the club may be obtained.

Stephenson Locomotive Society

Meetings at provincial centres have been continued during spring and early summer. Several interesting evenings have been devoted to photographic displays by episcope, lecturers on a varied range of locomotive practice including Messrs. Whitworth, Casserley, Greenfield, Madeley and Bowtell. At the Glasgow gathering Mr. Croughton's paper on Great North of Scotland engines was read and discussed. The Society's monthly illustrated journal isposted regularly to all members. The General Secretary is Mr. D. W. Allen, 44, Belsize Road, London, N.W.6.

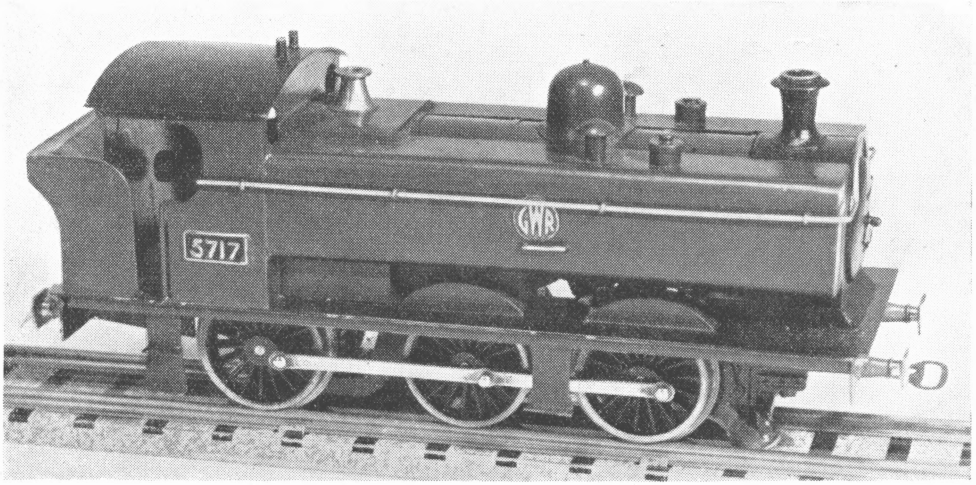
Glasgow & West of Scotland Model Railway Society

A lecture on "Model Locomotive Construction" will be given on Friday, 6th September, at 7.30 p.m., in the Clubroom, No. 4 Platform; Eglinton St. Station, Glasgow. Members are reminded that the clubroom is open on Thursday evenings and Saturday afternoons, both "OO" gauge and "O" gauge tracks being available. Visitors are welcome at any of our meetings and a particular welcome is assured to members of H.M. Forces. Hon. Secretary, D. Murdoch, 137 Mount Annan Drive, Glasgow, S.4.

TRADE TOPICS

More "Dublo" Conversion

Lately, we have published some illustrated descriptions of readers' rebuildings of Hornby "Dublo" mechanisms; the photograph reproduced here shows a similar "rebuild" produced, to order, by the well-known firm of Tyldesley & Holbrook, of Manchester. As will be seen, the model is a G.W.R. Pannier-tank mounted on a "Dublo" chassis, and, we understand, is now a standard product of the firm. The bodies are built up out of nickel-alloy plate, with turned brass chimneys, domes and safety-valves, and are hand painted. We understand that in later models of this type, the rather narrow appearance of the chimney has been corrected. In other respects, the model is pleasing and satisfactory.



A G.W.R. 0-6-0 tank engine "converted" from a Hornby "Dublo" mechanism, by Tyldesley & Holbrook, of Manchester.

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Private Announcements

Rate: 1d. per word, prepaid.

For Sale:—Marklin, Hornby, Phillips Transformers and Controllers; Hornby and Marklin Electric Track, Points, Rolling Stock. All Dublo gauge. Stamp reply.—CARPENTER, Hoo Cottage, Whitwell, Herts.

Gauge "1" L.M.S. 4-6-0 "Prince of Wales" Loco. clockwork, two speeds. Absolutely new, £5.—109, Westerham Rd., Keston, Kent.

Gauge "O" Clockwork Locomotives, Goods Stock. Stamp for list.—RUSH, 216, Stanley Street, Accrington.

Three Partly Constructed L.M.S. 0-6-0 Tender Goods, gauge "O"; 4 mm. Southern 0-6-0 Tender Goods, 19 mm. gauge, no motor; Hand Bench Drill, Set of Drills; 2-in. Vice; Electric Soldering Iron; Nail Press Tool; "O" gauge Oddments; Sheet Brass, Tube, etc.; Railway and Engineering Books. Offers. Stamp particulars.—BALDWIN, 23, Harnham Rd., Salisbury.

Gauge "1" Coal-fired L.M.S. 0-6-0 (cost £60) as new; several Clockwork and Electric Locos., by Bassett-Lowke; quantity Keyed Track, Points, Crossovers.—Below.

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